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STATE OF MONTANA

BULLETIN

OF THE

Department of Public Health

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Vol. 8.

November 15, 1914.

No. 7

MONTANA STATE BOARD OF HEALTH

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Chemist.

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Consulting Architect.

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Consulting Sanitary Engineer.

HELENA, MONTANA.

Published Monthly at Helena, by the State Board of Health.

"The science of disease prevention, if properly applied, can add fifteen years to the present average length of human life."—Prof. Irving Fisher, Yale.

This Bulletin will be mailed monthly to any person in Montana upon request mailed to the Secretary of the State Board of Health at Helena.





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TUBERCULOSIS.

At the 1913 session of the Legislature, Tuberculosis was put in the list of "communicable diseases," which are required to be reported. This law went into effect February 13th, 1913. During the remainder of the year 1913, there were one hundred twenty-four (124) cases of Tuberculosis reported. During the first nine months of the year 1914, there were one hundred seventy-one (171) cases reported. We feel certain that this number does not represent all of the cases of Tuberculosis in this State.

The number of deaths from Tuberculosis in 1912, were nine hundred seventy-two (972), and in 1913, there were three hundred eighty-five (385) deaths. We feel certain that we are not getting full reports of all Tuberculosis cases.

Unless this Department can make use of reports of Tuberculosis other than merely compiling statistics, we feel that the doctors have but little encouragement to report their cases.

We hope to be able in the future to effect an organization whereby all cases of Tuberculosis, which are reported to this office, will be supplied with literature instructing them how to live in order that a cure may be effected, and what precautions are necessary to prevent the spread of the disease. In order that this may be done, the State should appropriate money to carry on an educational campaign against this disease.

The State Tuberculosis Sanatorium has done excellent work considering the class of patients that they have been treating at that institution. Too many of the cases sent there have been past all hope of cure. A large per cent of those sent in the incipient stage of the disease have improved or completely recovered, but their cure has been retarded by the depressing effects of having to associate with the incurables.

We believe that provision should be made for the enlargement of this institution in such a way that the incurables be entirely separated from the incipient cases.

WHAT IS HEART FAILURE?

We really wish our esteemed contemporaries, the doctors, would explain to us exactly what they mean when they say that So-and-So has died of heart failure, says the Washington Post. Of course, we know in a general way that a citizen

dies when his heart comes to a determined stop, and no doubt that consummation might be loosely described as heart failure on the ground that it is the reverse of heart activity. But the term is now employed as though it described some specific complaint, like consumption, or Bright's disease, or diphtheria; and we are building up within ourselves a yearning curiosity to know just what it means.

Mr. Thompson, we will say, is a large man of liberal ways of life, with a florid complexion, a jocund nose, and a coming appetite for rum and water. He eats with catholic taste and Brobdignagian energy. He drinks as does the panting hart which finds an unexpected fountain in the desert. Some fine day Thompson dies with his boots on, so to speak; that is to say, he reaches for his glass of hot whiskey toddy, misses it, and passes. Several eminent physicians gaze upon the cadaver, wag their heads mournfully, and say: "Heart failure." Within a week old Joskins round the corner takes a tumble. Joskins is cadaverous and long, built like a tuning-fork, and equipped inside of him like the crane of song and story. He eats little, drinks less, and mirrors his generation in a bilious eye. Somebody leaves the door ajar and Joskins blows out through the chink into another world. Doctors come and ponder over him and say "Heart failure" once again.

We do not understand it. We wish we did. What is heart failure anyhow? Is it a new disease, or is the term merely a scientific subterfuge?

COMMUNICABLE DISEASES REPORTED TO THE STATE BOARD OF HEALTH FOR THE MONTH OF OCTOBER, 1914.

Smallpox—Fergus, 1; Jefferson, 3; Lewis and Clark (Excl. of Helena), 8; Helena, 2; Meagher, 1; Missoula Co. (Excl. of Missoula City), 2; Sheridan, 1; Silver Bow (Excl. of Butte), 2; Butte, 7; Sweet Grass, 4; Total, 31; Total last month, 17.

Diphtheria—Blaine, 1; Great Falls, 6; Custer, 21; Dawson, 1; Gallatin (Excl. of Bozeman), 2; Hill, 2; Richland, 1; Sheridan, 2; Silver Bow (Excl. of Butte), 1; Butte, 2; Total, 39. Total last month, 9.

Scarlet Fever—Cascade (Excl. of Great Falls), 3; Great Falls, 5; Choteau, 6; Custer, 1; Gallatin (Excl. of Bozeman), 1;

Hill, 13; Helena, 2; Lincoln, 1; Mineral, 1; Richland, 4; Sheridan, 5; Silver Bow (Excl. of Butte), 1; Stillwater, 7; Yellowstone (Excl. of Billings), 1; Billings, 3. Total 52. Total last month, 40.

Typhoid Fever—Beaverhead, 1; Blaine, 8; Cascade (Excl. of Great Falls), 10; Great Falls, 5; Dawson, 3; Fallon, 2; Fergus, 1; Kalispell, 1; Gallatin (Excl. of Bozeman), 7; Bozeman, 1; Hill, 4; Helena, 1; Lincoln, 1; Richland, 3; Sanders, 1; Sheridan, 2; Silver Bow (Excl. of Butte), 3; Butte, 9; Stillwater, 1; Sweet Grass, 3; Teton, 1; Valley, 5; Yellowstone (Excl. of Billings), 4; Billings, 9; Wibaux, 3. Total, 89. Total last month, 84.

Measles—Great Falls, 1; Hill, 3; Helena, 2; Butte, 1; Billings, 1. Total, 8. Total last month, 5.

Tuberculosis—Cascade (Excl. of Gt. Falls), 1; Dawson, 2; Sanatorium, 9; Fergus, 1; Livingston, 1; Butte, 12; Total, 26. Total last month, 28.

Anterior Poliomyelitis—Fergus, 1. Total, 1. Total last month, 0.

**DEATHS (EXCL. OF STILLBIRTHS) REPORTED TO THE STATE BOARD
OF HEALTH FOR THE MONTH OF OCTOBER, 1914, ARRANGED
ACCORDING TO COUNTIES AND PRINCIPAL CITIES.**

| | Totals | All Other Causes | Alcoholism | Suicide | Violence | Acute Intestinal Diseases | Malignant Tumors | Organic Heart Disease | Nephritis | Pneumonia | Whooping Cough | Measles | Typhoid Fever | Scarlet Fever | Diphtheria | Tuberculosis | Small Pox | Spotted Fever |
|--------------------------|--------|------------------|------------|---------|----------|---------------------------|------------------|-----------------------|-----------|-----------|----------------|---------|---------------|---------------|------------|--------------|-----------|---------------|
| Beaverhead | 11 | 2 | | 3 | | 1 | 1 | | | 3 | | | | | 1 | | | |
| Broadwater | 3 | 1 | | | | 1 | | | | 1 | | | | | | | | |
| Carbon | 6 | 3 | | 1 | | 1 | | | | | | | | | | | | |
| Cascade Excl. of | 9 | 3 | | 1 | | 1 | | | | | 1 | | | | 1 | | | |
| Great Falls | 20 | 9 | | 1 | | 1 | | | | 1 | | | 1 | | 2 | | | |
| Choteau | 3 | | | | | | | | | 1 | | | | | | | | |
| Custer | 9 | 3 | | 1 | | 1 | | | | 1 | | | | | 2 | | | |
| Dawson | 10 | 6 | | 1 | | 1 | | | | 1 | | | | | 1 | | | |
| Deer Lodge Excl. of | 10 | 6 | | | | 1 | | | | 1 | | | | | 2 | | | |
| Anaconda | 12 | 4 | | 3 | | 1 | | | | 2 | | | | | 2 | | | |
| Fergus | 16 | 8 | | 1 | | 1 | | | | 1 | | | | | | | | |
| Flathead Excl. of | 10 | 6 | | 2 | | 1 | | | | 1 | | | | | 2 | | | |
| Kalispell | 9 | 3 | | | | 1 | | | | 2 | | | 1 | | 1 | | | |
| Gallatin Excl. of | 10 | 4 | | | | 2 | | | | 1 | | | 1 | | | | | |
| Bozeman | 8 | 5 | | | | 1 | | | | 2 | | | | | | | | |
| Granite | 4 | 2 | | | | | | | | | | | | | | | | |
| Jefferson | 2 | 2 | | | | | | | | | | | | | | | | |
| Lewis and Clark Excl. of | 6 | 1 | | | | 1 | | | | 3 | | | | | | | | |
| Helena | 21 | 7 | | 1 | | 2 | | | | 2 | | | 1 | | 2 | | | |
| Lincoln | 7 | 3 | | 1 | | 1 | | | | 1 | | | 1 | | | | | |
| Madison | 5 | 2 | | 1 | | 1 | | | | 1 | | | | | | | | |
| Meagher | 4 | 2 | | | | | | | | 1 | | | | | | | | |
| Missoula Excl. of | 4 | 2 | | | | 1 | | | | | | | | | | | | |
| Missoula City | 14 | 6 | | 1 | | 1 | | | | 1 | | | | | | | | |
| Musselshell | 3 | 1 | | 2 | | | | | | | | | | | | | | |
| Park Excl. of | 3 | 3 | | | | | | | | | | | | | | | | |
| Livingston | 2 | 1 | | | | | | | | | | | | | 1 | | | |
| Powell | 8 | 4 | | 1 | | | | | | 3 | | | | | | | | |
| Ravalli | 8 | 4 | | | | | | | | 1 | | | | | 1 | | | |
| Rosebud | | | | | | | | | | 2 | | | | | | | | |
| Sanders | 2 | 1 | | 1 | | | | | | | | | | | | | | |
| Silver Bow Excl. of | 20 | 2 | | | | 2 | | | | 3 | | | 1 | | 6 | | | |
| Butte | 51 | 17 | | 2 | | 1 | | | | 12 | | | 4 | | 7 | | | |
| Sweet Grass | 5 | 2 | | 1 | | 1 | | | | | | | | | | | | |
| Teton | 7 | 2 | | | | | | | | | | | 1 | | | | | |
| Valley | 6 | 1 | | | | 1 | | | | 1 | | | 1 | | | | | |
| Yellowstone Excl. of | 6 | 1 | | 4 | | | | | | 1 | | | | | | | | |
| Billings | 12 | 3 | | 1 | | 1 | | | | 2 | | | 1 | | | | | |
| Big Horn | | | | | | | | | | | | | | | | | | |
| Blaine | 5 | 3 | | 1 | | | | | | | | | | | | | | |
| Fallon | | | | | | | | | | | | | | | | | | |
| Hill | 10 | 3 | | 1 | | 2 | | | | 2 | | | 1 | | | | | |
| Mineral | 1 | | | | | | | | | | | | | | 1 | | | |
| Richland | 8 | 4 | | 2 | | 1 | | | | 1 | | | | | | | | |
| Sheridan | 7 | 3 | | | | | | | | 1 | | | 1 | | | | | |
| Stillwater | | | | | | | | | | | | | | | | | | |
| Tecole | 3 | | | 1 | | | | | | 2 | | | | | | | | |
| Wibaux | 1 | | | | | | | | | 1 | | | | | | | | |
| Totals | 380 | 148 | 3 | 11 | 36 | 21 | 15 | 37 | 21 | 41 | 5 | 7 | 3 | 3 | 31 | | | |

Estimated population 420,000
Monthly death rate per 1,000 population 900
Annual death rate per 1,000 population 10.80

**BIRTHS (EXCL. OF STILLBIRTHS*) REPORTED TO THE STATE BOARD
OF HEALTH FOR THE MONTH OF OCTOBER, 1914, AND COM-
PARATIVE BIRTH AND DEATH RECORD IN THE STATE.**

| | Males..... | Females..... | Totals..... | Deaths..... | Excess of Births..... | Excess of Deaths..... |
|--------------------------------|------------|--------------|-------------|-------------|-----------------------------|-----------------------------|
| Beaverhead | 9 | 8 | 17 | 11 | 6 | ..... |
| Broadwater | 2 | 4 | 6 | 3 | 3 | ..... |
| Carbon | 11 | 13 | 24 | 6 | 18 | ..... |
| Cascade Excl. of | 6 | 5 | 11 | 9 | 2 | ..... |
| Great Falls | 24 | 25 | 49 | 20 | 29 | ..... |
| Choteau | 13 | 9 | 22 | 3 | 19 | ..... |
| Custer | 14 | 15 | 29 | 9 | 20 | ..... |
| Dawson | 12 | 6 | 18 | 10 | 8 | ..... |
| Deer Lodge Excl. of ..... | ..... | ..... | ..... | 10 | ..... | 10 |
| Anaconda | 9 | 10 | 19 | 11 | 8 | ..... |
| Fergus | 25 | 19 | 44 | 16 | 28 | ..... |
| Flathead Excl. of | 4 | 4 | 8 | 10 | ..... | 2 |
| Kalispell | 7 | 4 | 11 | 9 | 2 | ..... |
| Gallatin Excl. of | 9 | 11 | 20 | 10 | 10 | ..... |
| Bozeman | 9 | 13 | 22 | 8 | 14 | ..... |
| Granite | 2 | 2 | 4 | 4 | ..... | ..... |
| Jefferson | 5 | 3 | 8 | 2 | 6 | ..... |
| Lewis and Clark Excl. of | 7 | 2 | 9 | 6 | 3 | ..... |
| Helena | 14 | 12 | 26 | 21 | 5 | ..... |
| Lincoln | 7 | 3 | 10 | 7 | 3 | ..... |
| Madison | 5 | 4 | 9 | 5 | 4 | ..... |
| Meagher | 9 | 8 | 17 | 4 | 13 | ..... |
| Missoula Excl. of | 4 | 2 | 6 | 4 | 2 | ..... |
| Missoula City | 13 | 15 | 28 | 14 | 14 | ..... |
| Musselshell | 7 | 6 | 13 | 3 | 10 | ..... |
| Park Excl. of | 3 | 1 | 4 | 3 | 1 | ..... |
| Livingston | 4 | 7 | 11 | 2 | 9 | ..... |
| Powell | 4 | 5 | 9 | 8 | 1 | ..... |
| Ravalli | 15 | 11 | 26 | 8 | 18 | ..... |
| Rosebud | 2 | 5 | 7 | ..... | 7 | ..... |
| Sanders | 2 | 1 | 3 | 2 | 1 | ..... |
| Silver Bow Excl. of | 13 | 18 | 31 | 20 | 11 | ..... |
| Butte | 37 | 34 | 71 | 51 | 20 | ..... |
| Sweet Grass | 7 | 6 | 13 | 5 | 8 | ..... |
| Teton | 10 | 9 | 19 | 7 | 12 | ..... |
| Valley | 7 | 16 | 23 | 6 | 17 | ..... |
| Yellowstone Excl. of | 16 | 3 | 19 | 6 | 13 | ..... |
| Billings | 14 | 15 | 29 | 12 | 17 | ..... |
| Big Horn | 2 | 1 | 3 | ..... | 3 | ..... |
| Blaine | 10 | 8 | 18 | 5 | 13 | ..... |
| Fallon | 2 | 3 | 5 | ..... | 5 | ..... |
| Hill | 18 | 14 | 32 | 10 | 22 | ..... |
| Mineral | 3 | 1 | 4 | 1 | 3 | ..... |
| Richland | 4 | 6 | 10 | 8 | 2 | ..... |
| Sheridan | 16 | 10 | 26 | 7 | 19 | ..... |
| Stillwater | 4 | 2 | 6 | ..... | 6 | ..... |
| Teole | 3 | 5 | 8 | 3 | 5 | ..... |
| Wibaux | 1 | ..... | 1 | 1 | ..... | ..... |
| Totals | 424 | 394 | 818 | 380 | 440 | 12 |

*Stillbirths 33

DIVISION OF FOOD AND DRUGS.

Laboratory Report.

Samples Reported During the Month of October.

| Classification | Legal | Illegal | Unofficial | Total |
|---------------------------|-------|---------|------------|-------|
| Milk | 32 | 6 | 2 | 40 |
| Cream | 2 | --- | --- | 2 |
| Sausage | --- | 1 | --- | 1 |
| Preserving Compound | --- | 1 | --- | 1 |
| Water | --- | --- | --- | 26 |
| Sewage | --- | --- | --- | 20 |
| Total | 34 | 8 | 2 | 90 |

The analyses of ninety samples of food, water, and sewage were reported to the Secretary of the State Board of Health during the month of October. Forty-two samples of milk and cream were analyzed. These samples were taken in the following cities and towns:

Bridger, Big Timber, Fromberg, Hardin, Harlowton, Glendive, Ringling, Terry and White Sulphur Springs.

Water samples were sent for chemical and bacteriological examinations from the following places: Armstead, Allen, Argenta, Billings, Big Sandy, Cut Bank, Chinook, Fort Benton, Glasgow, Livingston, Medicine Lake, Stanford, Stockett, Townsend, Wilsall and Worden.

Twelve of the sources from which water samples were sent were pronounced "good," seven were "bad," six were "doubtful," and further inspection and sampling were recommended.

Twenty samples of sewage and sewage effluent from the experiment sewage disposal plant at Bozeman were examined. This plant is operated under a co-operative agreement between the State Board of Health, the Montana State College and the city of Bozeman. Complete chemical and bacteriological examinations of the sewage samples were made including many determinations of putrescibility and oxygen dissolved.

A more detailed report of the food samples follows:

MILK.
Standard or Above.

| Lab. No. | Date | Obtained from | Town | Total Solids not | | |
|-------------|----------|----------------------------|------------|---------------------|-------|------|
| | | | | Solids | Fat | Fat |
| 3820 | 10-17-14 | J. W. Davis | Big Timber | 13.45 | 9.05 | 4.4 |
| 3822 | 10-19-14 | Tom Kue Restaurant | Big Timber | 16.71 | 9.41 | 7.30 |
| 3823 | 10-19-14 | Lee Gang Restaurant | Big Timber | 13.89 | 9.35 | 4.50 |
| 3825 | 10-24-14 | Jim Yedlicka | Fromberg | 12.43 | 8.53 | 3.90 |
| 3826 | 10-19-14 | Mrs. Ed. Lester | Fromberg | 12.98 | 8.98 | 4.00 |
| 3827 | 10-21-14 | Mrs. Joseph Pokorney | Fromberg | 13.80 | 9.50 | 4.30 |
| 3828 | 10-24-14 | W. H. Weaver | Terry | 12.40 | 9.10 | 3.30 |
| 3830 | 10-24-14 | H. C. Klock | Harlowton | 12.69 | 8.89 | 3.80 |
| 3831 | 10-24-14 | J. H. Thompson | Harlowton | 14.99 | 9.69 | 5.30 |
| 3832 | 10-24-14 | F. W. Ramage | Harlowton | 12.00 | 8.60 | 3.40 |
| 3833 | 10-24-14 | R. J. Thompson | Harlowton | 12.87 | 8.97 | 3.90 |
| 3835 | 10-24-14 | P. S. Olson | Harlowton | 12.17 | 8.77 | 3.40 |
| 3838 | 10-24-14 | Thompson & Jackson | White Sul- | 13.43 | 9.13 | 4.30 |
| | | | phur Spgs. | | | |
| 3839 | 10-24-14 | Cora A. George | White Sul- | 12.95 | 8.65 | 4.30 |
| | | | phur Spgs. | | | |
| 3840 | 10-24-14 | W. E. Adams | Ringling | 15.23 | 9.55 | 5.70 |
| 3841 | 11- 2-14 | Mint Kelly | Hardin | 14.38 | 9.58 | 4.80 |
| 3842 | 11- 2-14 | Charles F. Hart | Hardin | 14.18 | 9.68 | 4.50 |
| 3843 | 11- 2-14 | D. M. Howell | Hardin | 13.71 | 10.01 | 3.70 |
| 3844 | 11- 2-14 | R. F. Edgerton | Hardin | 14.88 | 9.88 | 5.00 |
| 3845 | 11- 2-14 | Mrs. Kate McEvoy | Hardin | 16.09 | 9.89 | 6.20 |
| 3846 | 11- 2-14 | John Albertson | Hardin | 13.34 | 8.94 | 4.40 |
| 3848 | 11- 2-14 | Pope Brothers | Glendive | 12.77 | 8.97 | 3.80 |
| 3849 | 11- 2-14 | Saddler Brothers | Glendive | 13.00 | 9.20 | 3.80 |
| 3850 | 11- 2-14 | J. Kotaki (Rest.) | Glendive | 13.07 | 9.17 | 3.90 |
| 3857 | 11- 2-14 | N. P. Lunch Counter | Glendive | 12.63 | 9.03 | 3.60 |
| 3858 | 10-31-14 | Mrs. A. M. Bennett | Bridger | 14.09 | 9.69 | 4.40 |
| 3859 | 10-31-14 | Mrs. Carl Smith | Bridger | 17.10 | 10.10 | 7.00 |
| 3860 | 10-31-14 | F. W. Bird | Bridger | 18.09 | 8.79 | 9.30 |
| 3861 | 10-31-14 | The Lens Inn | Bridger | 15.56 | 9.91 | 5.65 |
| 3852 | 11- 2-14 | Mrs. Hattie Blines | Glendive | 12.52 | 8.52 | 4.00 |
| 3853 | 11- 2-14 | Mrs. H. F. Hilliard | Glendive | 13.62 | 8.72 | 4.90 |
| 3854 | 11- 2-14 | Royal Cafe | Glendive | 12.70 | 9.20 | 3.50 |

MILK.
Below Standard.

| Lab. No. | Date | Obtained from | Town | Remarks. |
|-------------|----------|--------------------------------|-----------------|-----------------|
| 3829 | 10-24-14 | B. E. Kempton, Hotel..... | Terry | Low in fat. |
| 3834 | 10-26-14 | Geo. Akagi, Hotel | Harlowton | Low in fat and |
| 3836 | 10-26-14 | Frank Seng | White Sulphur | solids not fat. |
| | | | Springs | Low in fat and |
| | | | White Sulphur | contains for- |
| 3837 | 10-24-14 | Rosa Gordon | Springs | eign matter. |
| 3851 | 11- 2-14 | Mujoa Restaurant | Glendive | Low in fat. |
| 3855 | 11- 2-14 | L. W. Arthur, Restaurant | Glendive | Low in fat. |

CREAM.

| Lab. No. | Date | Obtained from | Town | Fat |
|-------------|----------|-------------------------|----------------|-----|
| 3821 | 10-19-14 | C. T. Busha | Big Timber.... | 40% |
| 3824 | 10-19-14 | Brammer & Brammer | Big Timber.... | 27% |

MONTANA SEWAGE EXPERIMENT STATION.

The second annual meeting of the Montana Society of Municipal Engineers held in Great Falls, last January was attended by representatives of the State Board of Health, who took part in a general discussion of methods of sewage disposal and the prevention of the pollution of rivers and waterways. The discussion ended with the passage of a resolution by the society favoring the organization of a sewage experiment station to study methods of sewage disposal and treatment suitable to conditions in Montana, and to study the question of the pollution of rivers and waterways in the state.

The authority to establish an experiment station of this kind is given to the State Board of Health in Section 1570, of the Revised Codes of Montana, which reads as follows:

"Section 1570. Establishment of Experiment Stations—That in order that the State Board of Health, may at all times be prepared to give the best advice to cities, towns, public institutions or private corporations relative to the prevention or removal of pollutions of water, said Board is hereby authorized to establish and maintain an experimental station for the purpose of studying the best methods of preventing pollution of water and for the purification of water and for the purification, disinfection and disposal of sewage and domestic and manufacturing waste so as to prevent pollution of water, and said Board is authorized to cause sanitary methods and systems in use outside of the State of Montana to be investigated and studied with a view of ascertaining their fitness for conditions in this State."

It was apparent that there were not enough funds available to properly design, construct, operate, and test the efficiency of a suitable experimental plant so it was decided to request the co-operation and assistance of various departments of the Montana State College and the city of Bozeman where the plant is located. As a result an organization on a co-operative basis has been made and the staff is composed of the following members:

Dr. W. F. Cogswell, Secretary, Montana State Board of Health,
Executive Officer.

W. M. Cobleigh, Chemist in charge of efficiency tests.

D. B. Swingle, Bacteriologist in charge of disinfection tests

F. C. Snow, Engineer in charge of design and construction.

Carl Widener, City Engineer in charge of operations.

W. B. Vestal, Operating Engineer.

Carl Gottschalck, Assistant Chemist.

Otto Batch, Assistant in Bacteriology.

Under the agreement the cost of construction of the experimental plant has been assumed by the State Board of Health, the expense of operating and sampling is to be paid by the city of Bozeman. The laboratory tests required to determine the efficiency of the methods of sewage treatment installed are to be done in the bacteriological and chemical laboratories of the Montana State College, where the regular work in water and sewage testing is done for the Board of Health under a special appropriation from the state.

The experimental plant has been installed by Professor F. C. Snow, of the Civil Engineering Department of the college and consists of screens, a septic tank, contact and sprinkling filters and sand filters which will be operated in various combinations. A disinfection apparatus for handling calcium hypochlorite will soon be installed.

The plant is now in operation under the direction of Mr. Widener, and Mr. Vestal, and the laboratory tests have been started.

The efficiency of the different methods and combinations of methods of sewage purification as determined by the rapidity with which they destroy the bacteria will be studied by Professor D. B. Swingle. From the data thus obtained it may be possible to draw conclusions as to the best means of protecting some of the smaller streams of the state from excessive contamination, by disinfecting or purifying the raw sewage, sewage effluent, etc.

The units of the experimental plant will be used in various combinations and the effluents studied from the chemical standpoint, by Prof. W. M. Cobleigh, and Mr. Gottschalck. The usual chemical tests of sewage will be made including oxygen demand, and putrescibility. In addition to the above it is the plan to study the method of simple screening and disposal by dilution in the East Gallatin river.

The results of the experiments together with the conclusions warranted will be published as a joint report by the State Board of Health. It also is a part of the plan to formulate

general policies that could govern the treatment and disposal of sewage in Montana.

It is hoped that these policies can be formulated in such a way as to be acceptable to the State Health Officials and that their adoption will be effective in establishing a workable plan in this important matter of the proper disposal of city sewage. The object in view is to protect the rivers and water-ways in the state from excessive pollution in order that water purifying plants located on these rivers may not have excessive burdens thrown upon them.

HELENA PUBLIC LIBRARY,

HELENA, MONT.
